

# Torsion of the Omentum is one of the Rarest Causes of Acute Abdominal Pain

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## ARTICLE INFO

### Article history:

Received: 28 June 2021;

Received in revised form:  
18 August 2021;

Accepted: 28 August 2021;

### Keywords

Acute Abdominal Pain,  
Torsion of Greater Omentum,  
Whirl Sign,  
Fatty Volvulus,  
Necrotic Omentum,

## ABSTRACT

The torsion of the greater omentum is a rotation of all or part of the omentum on itself, which creates vascularization disorders; however, this diagnosis remains an infrequent situation in current practice, and because of the non-specificity of the clinical symptomatology, which depends on the site of the torsion and is confused with many other etiology, we report In this article we report a case of this 90-year-old patient, type 2 diabetic under ADO, who presented during five days the installation of epigastric pain and the CT scan takes all its interest in finding an image of rotation "whirl sign" and the diagnosis of torsion of the greater omentum is confirmed intraoperatively.

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## Introduction

The torsion of the large omentum is a rare cause of acute abdominal discomfort; however, it can be primary or secondary; in addition, the secondary forms remain the most common. However, the clinical signs are misleading and not very specific that can mimic many abdominal pathologies. We report a case of torsion of the greater omentum in a 90-year-old female patient who was successfully treated.

### Case report

We report the case of this 90-year-old patient, type 2 diabetic under ADO, who presented during five days the installation of an epigastric pain having objectified the patient to consult initially outside our hospital structure.

The clinical examination found abdominal distension with a generalized sensitivity more marked of the epigastrium and the right hypochondrium.

An abdominal ultrasound was performed and revealed the presence of a multi-lithiasis thin-walled gallbladder with the presence of a peritoneal effusion of medium abundance. A biological evaluation showed an elevation of the CRP to 318mg/l, a hyperleukocytosis to 15,000 with predominantly neutrophilic, and a height of lipasemia 112. It referred the patient to the CHU IBN SINA hospital center for suspicion of lithiasis pancreatitis.

We performed An abdominal CT scan which showed the presence of pre-hepatic fatty infiltration with individualization of the "Whirl sign"(figure 2, materiel video) indicating a fatty volvulus, as well as the presence of effusion within the region of the sickle ligament (figure3) and at the level of the parietocolic gutter, pre-hepatic gutters, and the douglas fir cul-de-sac, the pancreas, was of a size and morphology compatible with age without peripancreatic infiltration.

We accepted the diagnostic of torsion of the greater omentum in front of the clinical-radiological coordinator.

did not improve, we indicated an exploratory and therapeutic laparotomy.

Surgical exploration shows a brownish-red necrotic mass encompassing the round ligament and a large necrotic omentum. The procedure performed was an omentectomy with resection of the necrotic mass; moreover, the rest of the abdominal cavity exploration did not reveal any etiology that could explain this torsion.

The postoperative CT scan showed a significant regression of the fat infiltration with the disappearance of the whirl sign, and the postoperative follow-up was simple, so the patient was discharged on day 7 of her admission.

The sections analyzed at the mass level showed adipose tissue remodeled by a polymorphic inflammatory infiltrate with an image of fleshy buds, as well as the presence of numerous foamy histiocytes covering the necrotic adipocytes; in addition, we also observed hemorrhagic changes, and this same aspect was individualized at the level of the resected omentum, which led to conclude with inflammatory changes with cytosteatonerosis without objectification of signs of malignancy.

In front of the simultaneous analysis of the clinic,we retained the presence of the sign of whirlpool on the scannographic images, the data of the surgical exploration and the anatomopathological report, the diagnosis of the torsion of the large omentum.

### Discussion

Torsion of the greater omentum causes acute abdominal pain which can be misdiagnosed. Only around 1% of all episodes of acute abdominal discomfort in adults and children are caused by torsion of the greater omentum. [1]

The omental torsion determines the torsion of the omentum around an axis, generally in a clockwise direction, causing engorgement of the tortuous veins, which, once compressed, alter the venous return. Thus the omentum

becomes congested and edematous; this process may resolve spontaneously or continue its evolution [2].

Eitel first described omental torsion in 1899. diagnosed of Omental torsion is rarely preoperatively; knowledge of this pathology is essential for the doctor because it mimics the common causes of the acute surgical abdomen. [3] With an incidence of 0.0016 percent to 0.37 percent, greater omental torsion is an extremely unusual cause of an acute abdomen. [4]

The greater omentum can be torsioned in two ways: primary or secondary, with the latter being significantly more prevalent. [1]

The cause of primary greater omentum torsion is unknown. Intense activity, an abrupt change of posture, cough, inflammation, edema, obesity, or structural anomalies are all incriminated. [5] Specific malformation such as the bifid omentum, accessory omentum, and narrow omental [6].

Secondary causes are the most frequent and due to abdominal pathologies such as cysts, tumors, intra-abdominal inflammation. and surgical wounds or scarring [6]. Primary and secondary torsion of the larger omentum present with the same clinical signs and symptoms [5].

The clinical signs of torsion of the larger omentum make it difficult to identify. In our case, clinical doesn't make the diagnosis, and therefore, imaging was required

The patient presents with acute pain, depending on where the torsion is located, however, frequently focused in the right lower quadrant; gastrointestinal symptoms such as anorexia, nausea, and vomiting may be associated [6].

The symptomatology is non-specific and can mimic many pathologies as including acute appendicitis, acute cholecystitis, diverticulitis, perforated duodenal ulcer, abdominal wall hematoma, intestinal obstruction, and gynecologic diseases [1].

Ultrasound imaging shows an oval, hyperechoic, and non-compressible mass that adheres to the abdominal wall. On the other hand, CT is very sensitive to show a fatty masse with concentric linear streaks in the large omentum, (figure 1, which correspond to fibrous bands or dilated veins. realizing the whirl sign (figure2,,materiel video) [6]. In our case, we also objectified this fatty masse adherent to the abdominal wall (figure1,) realizing a famous swirling sign (figure2,,materiel video)

This sign may not appear in some circumstances, especially if imaging is not perpendicular to the torsion plane. [4] In another way, imaging is also important because they reveal the integrity of other abdominal organs [6].

Rupture and intraperitoneal hemorrhage, filtration purulent peritonitis, and intraperitoneal abscess are the redoubtable omental torsion problems, sometimes fibrosis and inflammatory reaction may engender occlusion [7].

The literature described Two therapeutic attitudes: the conservative medical treatment based on analgesic, anti-inflammatory, and antibiotic drugs and the surgical therapy through laparoscopy [8]. Surgical treatment is based on the resection of the necrotic and voluvuous segment of the omentum[6]. In our case, we tried the medical treatment for 48 hours, and when the clinical signs did not improve, we indicated a laparoscopy.

Because of the occurrence of intraperitoneal lesions in secondary greater omental torsion, surgical therapy is recommended once the condition is detected [5]. Histological examination revealed ischemic and hemorrhagic omentum with inflammatory infiltration, validating the diagnosis of omental infarction caused by torsion [1].

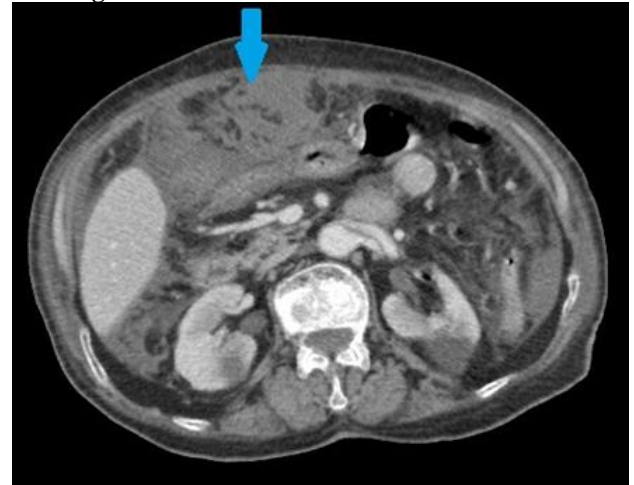
In our case, we tried the medical treatment for 48 hours, and when the clinical signs did not improve, we indicated a laparotomy.

### Conclusion

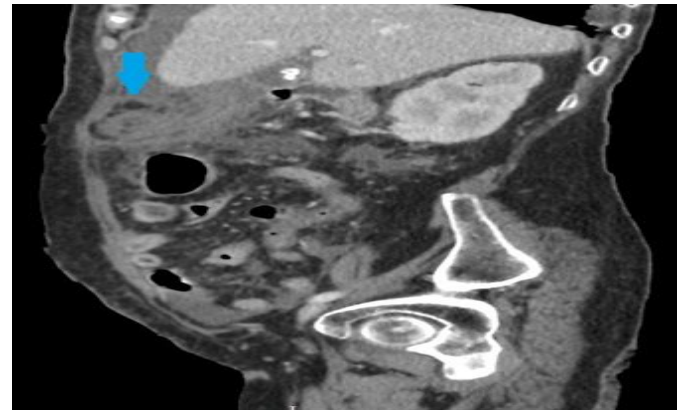
Although rare, the torsion of the large omentum is an uncommon surgical emergency.

Imaging is a valuable diagnostic aid in ultrasound and CT scanning, which is the examination of choice for this pathological entity.

### List of Figures:



**Figure 1.** An axial section of an abdominal CT scan after injection of contrast, showing a fatty mass with concentric strands interposed between the colon and the anterior abdominal wall.



**Figure 2.** A sagittal section of an abdominal CT scan after injection of contrast, showing significant densification of the abdominal fat, creating a mass appearance with individualization of the whirl sign.



**Figure 3.** An axial section of an abdominal CT scan after injection of contrast medium showing outflow in the region of the falciform ligament, peri-hepatic and peri-splenic.

**Reference**

- [1] Kataoka J, Nitta T, Ota M, Takashima Y, Yokota Y, Fujii K, Higashino T, Ishibashi T. Laparoscopic omentectomy in primary torsion of the greater omentum: report of a case. *Surg Case Rep.* 2019 May 9;5(1):76. doi: 10.1186/s40792-019-0618-5. PMID: 31073707; PMCID: PMC6509293.
- [2]G, R A. Omental torsion. *J Clin Diagn Res.* 2014 Jun;8(6):NE01-2. doi: 10.7860/JCDR/2014/9024.4479. Epub 2014 Jun 20. PMID: 25121029; PMCID: PMC4129349.
- [3] Eitel GG. Rare omental torsion. *New York Med Rec.* 1899; 55:715.)
- [4] Liu G, Patel M. A case of omental torsion and infarct diagnosed on computed tomography. *J Med Imaging Radiat Oncol.* 2021 Apr;65(2):219-221. doi: 10.1111/1754-9485.13129. Epub 2020 Nov 30. PMID: 33283477.
- [5]Yang Q, Gao Y. Incarcerated recurrent inguinal hernia as a cause of secondary torsion of the greater omentum: a rare case report and literature review. *J Int Med Res.* 2019

- Nov;47(11):5867-5872. doi: 10.1177/0300060519878372. Epub 2019 Oct 3. PMID: 31578894; PMCID: PMC6862910.
- [6] Karanikas M, Kofina K, Boz Ali F, Vamvakerou V, Effraemidou E, Lyratzopoulos N, Polychronidis A. Primary greater omental torsion as a cause of acute abdomen-a rare case report. *J Surg Case Rep.* 2018 Aug 7;2018(8):rjy207. doi: 10.1093/jscr/rjy207. PMID: 30094002; PMCID: PMC6080049.
- [7]Alexiou K, Ioannidis A, Drikos I, Sikalias N, Economou N. Torsion of the greater omentum: two case reports. *J Med Case Rep.* 2015 Jul 11;9:160. doi: 10.1186/s13256-015-0641-5. PMID: 26163136; PMCID: PMC4507315
- [8]Occhionorelli S, Zese M, Cappellari L, Stano R, Vasquez G. Acute Abdomen due to Primary Omental Torsion and Infarction. *Case Rep Surg.* 2014;2014:208382. doi: 10.1155/2014/208382. Epub 2014 Nov 6. PMID: 25431726; PMCID: PMC4241260.